

Appl. No. 10/608,913

Filed: June 26, 2003

Amdt. Dated July 22, 2004

Reply to Office action of June 10, 2004

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A photolithography system comprising:
a first plate having a pattern, the first plate being configured to receive light from a light source and to project an image through the pattern, the pattern including a defect causing distortion of the light; and
a second plate located in a path of the projected image, the second plate comprising one or more portions configured to diverge or converge ~~at least a portion of~~ only the light distorted by the defect.
2. (Original) The system of Claim 1, wherein the one or more portions of the second plate are geometrically related to the defect.
3. (Original) The system of Claim 1, wherein the one or more portions of the second plate are optically aligned with the defect such that the portion of the light distorted by the defect can be directed to the one or more portions of the second plate.
4. (Original) The system of Claim 1, wherein the one or more portions are characterized by a degree of divergence or convergence that is commensurate with the degree of distortion of the light.
5. (Original) The system of Claim 1, wherein the second plate further comprises one or more regions having substantially no optical effect on the light directed thereto.
6. (Original) The system of Claim 5, wherein the one or more regions of the second plate are geometrically related to an area of the pattern that is defect-free.
7. (Original) The system of Claim 1, wherein the second plate further comprises a pattern thereon.
8. (Original) The system of Claim 1, wherein the first and second plates are attached to each other.
9. (Original) The system of Claim 1, wherein the defect comprises a region that is undesirably transmissive or obstructive to light.

Appl. No. 10/608,913

Filed: June 26, 2003

Amdt. Dated July 22, 2004

Reply to Office action of June 10, 2004

10. (Original) The system of Claim 9, wherein the second plate comprises a filter configured to correct the effect of the defect on the distorted light.

11. (Original) The system of Claim 1, wherein the second plate is configured to correct the distorted projected image to a desired projected image.

12. (Original) The system of Claim 1, wherein a distance from the light source to the second plate is greater than a distance from the light source to the first plate.

13. (Original) The system of Claim 1, wherein the first plate comprises an optically transparent material.

14. (Original) The system of Claim 13, wherein the material comprises quartz.

15. (Original) The system of Claim 1, wherein the pattern comprises chrome.

16. (Original) The system of Claim 1, wherein the second plate comprises fused silica or calcium fluoride.

17. (Original) The system of Claim 1, further comprising a third plate covering a surface of the first plate.

18. (Original) The system of Claim 17, wherein the third plate comprises an optically transparent material.

19. (Original) The system of Claim 17, wherein the pattern is formed on the surface covered by the third plate.

20. (Original) The system of Claim 1, further comprising a wafer coated with a photo-resist layer and positioned to receive the projected image.

21. (Original) The system of Claim 20, further comprising at least one lens positioned between the first plate and the wafer.

22. (Original) The system of Claim 1, further comprising a lens positioned between the light source and the first plate.

23. (Original) The system of Claim 1, wherein the first plate comprises a reticle, and wherein the second plate comprises a filter.

24. (Original) The system of Claim 23, wherein the filter comprises a pellicle that is attached to the reticle.

25. (Currently Amended) A method of correcting a defect in a pattern of a photolithography system, the method comprising:

Appl. No. 10/608,913
Filed: June 26, 2003
Amdt. Dated July 22, 2004
Reply to Office action of June 10, 2004

receiving light from a source by a first plate having a pattern that includes a defect, which distorts light rays;

projecting an image through the pattern;

receiving the projected image by a second plate comprising one or more portions;

and

diverging or converging ~~at least part of~~ only the distorted light rays by the one or more portions of the second plate.

26. (Original) The method of Claim 25, further comprising exposing a wafer coated with a photo-resist layer to an image.

27. (Previously Presented) The method of Claim 26, wherein the image is produced from light rays diverged or converged by the one or more portions of the second plate.

28. (Currently Amended) A method of making a plate device configured to correct a defect of a pattern in a photolithography system, the method comprising:

projecting an image on a surface through a pattern of a first plate, the pattern including a defect causing distortion of light received by the first plate;

obtaining at least one measurement of a feature of the image projected on the surface;

analyzing the at least one measurement of the feature with reference to a desired feature so as to define the defect in the pattern, wherein analyzing the at least one measurement comprises determining a pixel's offset distance from a desired location; and

placing a second plate in a path of light forming the projected image, the second plate comprising one or more portions configured to diverge or converge at least part of the light distorted by the defect.

29. (Previously Presented) The method of Claim 28, wherein the desired feature comprises one that is obtained from a pattern substantially free of the defect.

30. (Previously Presented) The method of Claim 28, wherein obtaining at least one measurement comprises selectively varying resolution of the measurement.

31. (Previously Presented) The method of Claim 28, further comprising defining a diverging region in the second plate in the event that the first plate comprises a region that has a dimension smaller than a desired dimension.

Appl. No. 10/608,913

Filed: June 26, 2003

Amdt. Dated July 22, 2004

Reply to Office action of June 10, 2004

32. (Canceled).

33. (Previously Presented) The method of Claim 28, wherein analyzing the at least one measurement comprises determining a pixel's offset dimension from a desired size.

34. (Currently amended) A photolithography system comprising:

means for projecting an image on a surface through a pattern of a first plate, the pattern including a defect causing distortion of light received by the first plate;

means for obtaining at least one measurement of a feature of the image projected on the surface;

means for analyzing the at least one measurement of the feature with reference to a desired feature so as to define the defect in the pattern, wherein the analyzing means determines a pixel's offset distance from a desired location; and

means for determining optical characteristics of a second plate for substantially compensating for the defect.

35. (Currently amended) A photolithography system comprising:

means for filtering light and for projecting an image through a pattern located in the filtering means, the filtering means including a defect causing distortion of the light; and

means for converging or diverging light located in a path of the projected image, the converging or diverging means converging or diverging ~~at least part of~~ only the light distorted by the defect.

36. (Previously Presented) The system of Claim 35, wherein the converging or diverging means is attached to the filtering means.

37. (Previously Presented) The system of Claim 35, wherein the converging or diverging means is geometrically related to the location of and configured to compensate for the defect.

38. (Previously Presented) The system of Claim 35, wherein the converging or diverging means accomplishes correcting the defect.

39. (Original) The system of Claim 35, further comprising means for compensating for an optical distortion due to a variation in temperature in the photolithography system.

Appl. No. 10/608,913

Filed: June 26, 2003

Amdt. Dated July 22, 2004

Reply to Office action of June 10, 2004

40. (Previously Presented) The method of Claim 28, wherein the at least one measurement comprises a measurement of a distance between at least two positions on the image.

41. (Previously Presented) The method of Claim 28, wherein the feature for the at least one measurement comprises at least one of a position of a point, a size of a point, a distance between lines and a distance between spaces.

42. (Previously Presented) The method of Claim 28, wherein the at least one measurement is obtained from a horizontal plane defining the image.